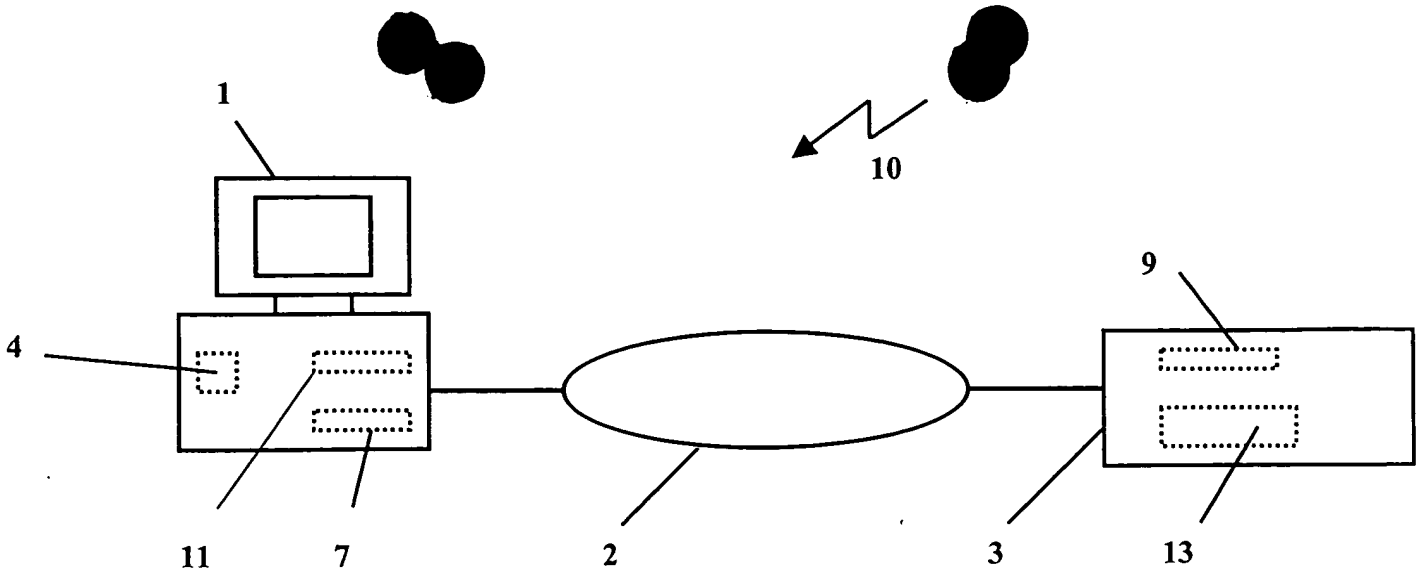

Fig. 1a

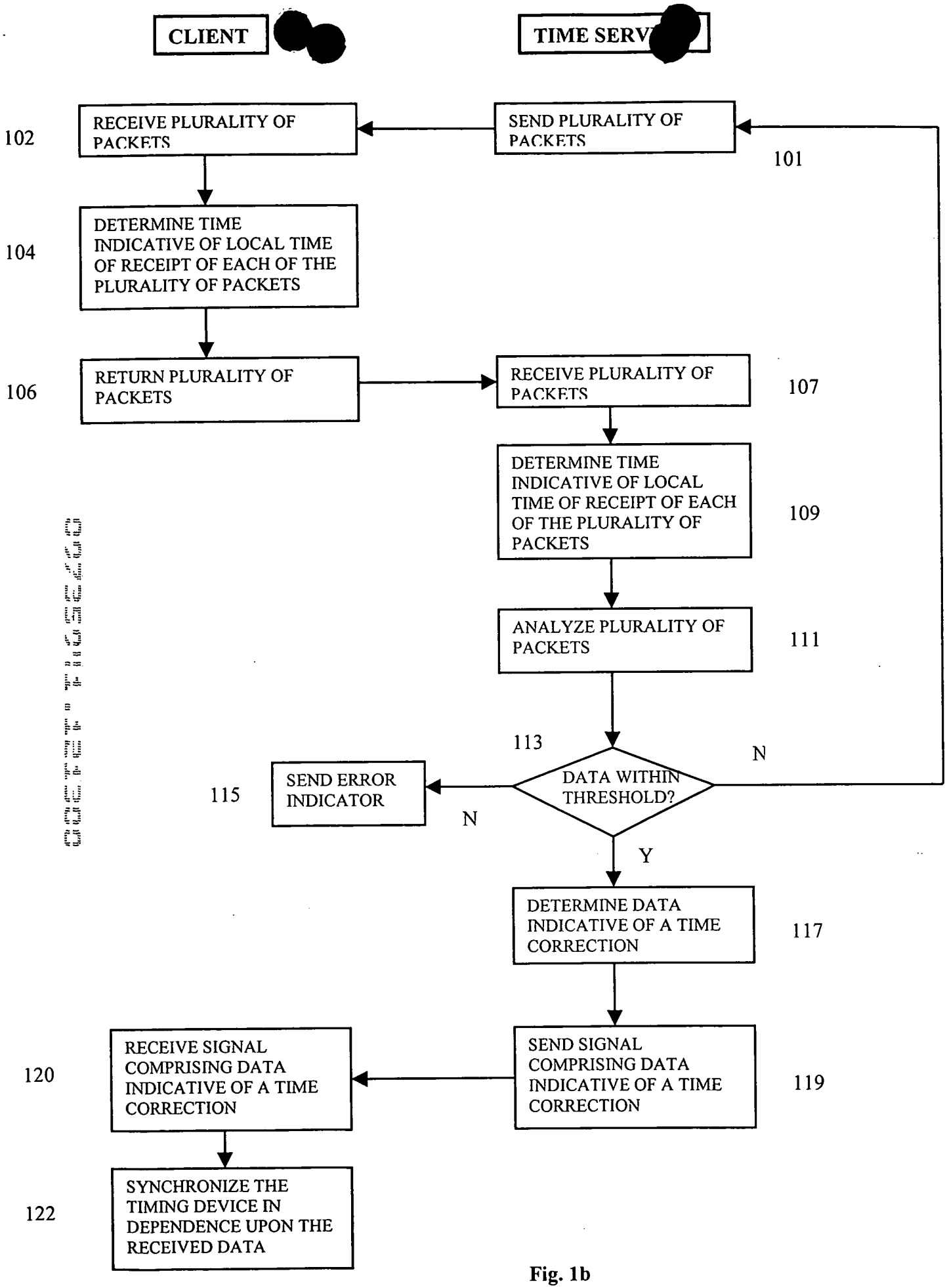
CLIENT
TIME SERV
SEND PLURALITY OF PACKETS
101
RECEIVE PLURALITY OF PACKETS
102
DETERMINE TIME INDICATIVE OF LOCAL TIME OF RECEIPT OF EACH OF THE PLURALITY OF PACKETS
104
RETURN PLURALITY OF PACKETS
106
RECEIVE PLURALITY OF PACKETS
107
DETERMINE TIME INDICATIVE OF LOCAL TIME OF RECEIPT OF EACH OF THE PLURALITY OF PACKETS
109
ANALYZE PLURALITY OF PACKETS
111
113
DATA WITHIN THRESHOLD?
N
Y
SEND ERROR INDICATOR
115
N
DETERMINE DATA INDICATIVE OF A TIME CORRECTION
117
SEND SIGNAL COMPRISING DATA INDICATIVE OF A TIME CORRECTION
119
RECEIVE SIGNAL COMPRISING DATA INDICATIVE OF A TIME CORRECTION
120
SYNCHRONIZE THE TIMING DEVICE IN DEPENDENCE UPON THE RECEIVED DATA
122

Fig. 1b

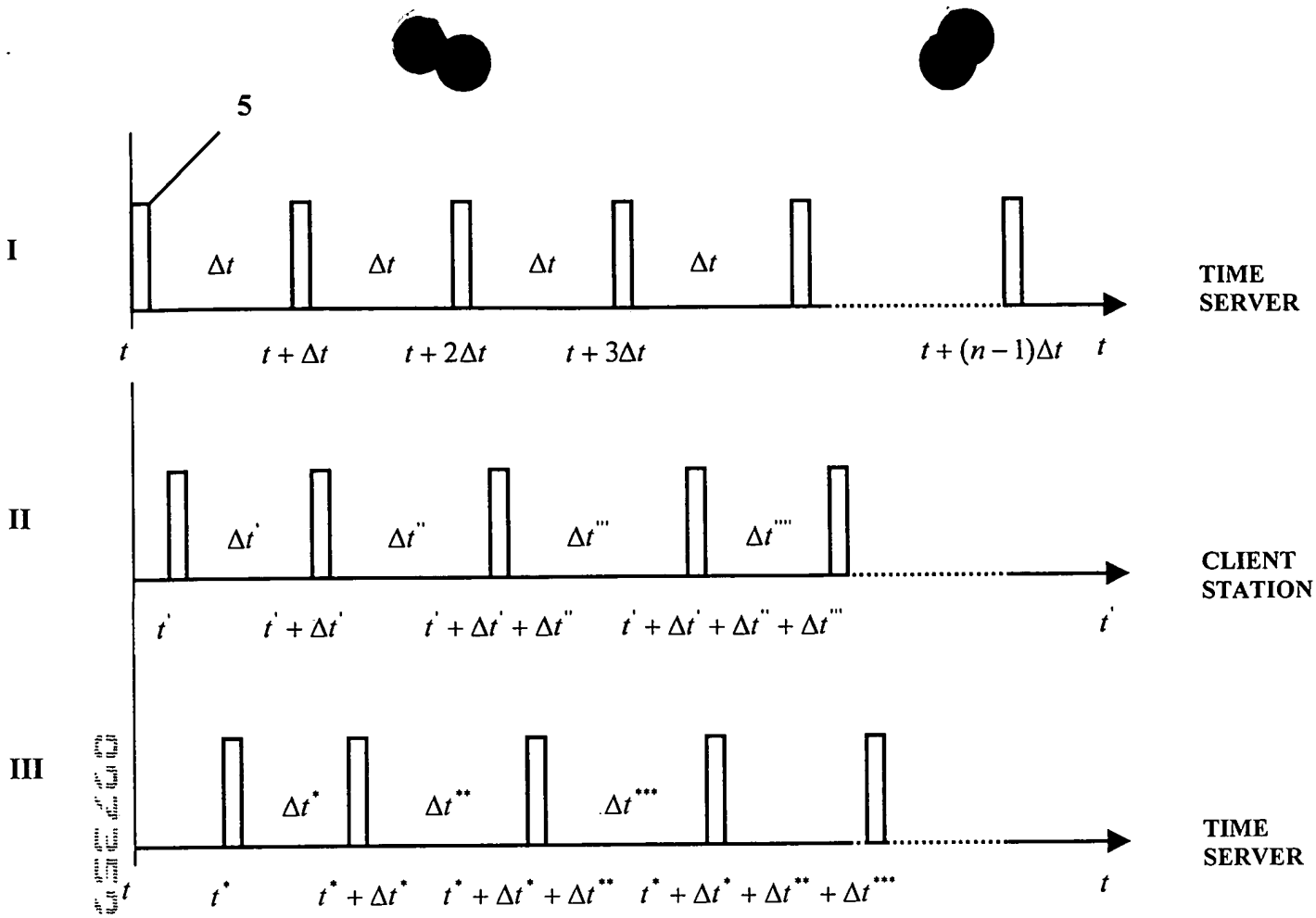
5
I
Δt
Δt
Δt
Δt
TIME SERVER
t
$t + \Delta t$
$t + 2\Delta t$
$t + 3\Delta t$
$t + (n-1)\Delta t$
t
II
$\Delta t'$
$\Delta t''$
$\Delta t'''$
$\Delta t''''$
CLIENT STATION
t'
$t' + \Delta t'$
$t' + \Delta t' + \Delta t''$
$t' + \Delta t' + \Delta t'' + \Delta t'''$
t'
III
Δt^*
Δt^{**}
Δt^{***}
TIME SERVER
t
t^*
$t^* + \Delta t^*$
$t^* + \Delta t^* + \Delta t^{**}$
$t^* + \Delta t^* + \Delta t^{**} + \Delta t^{***}$
t

Fig. 1c

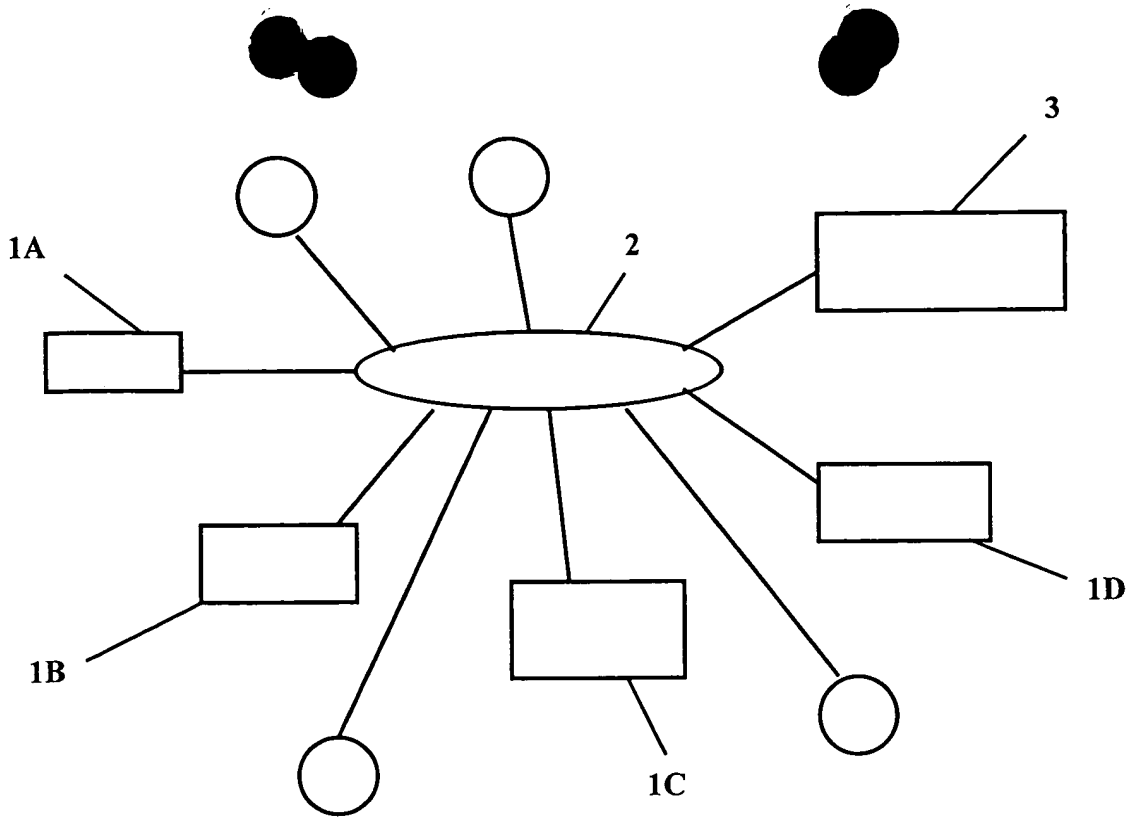

Fig. 2a

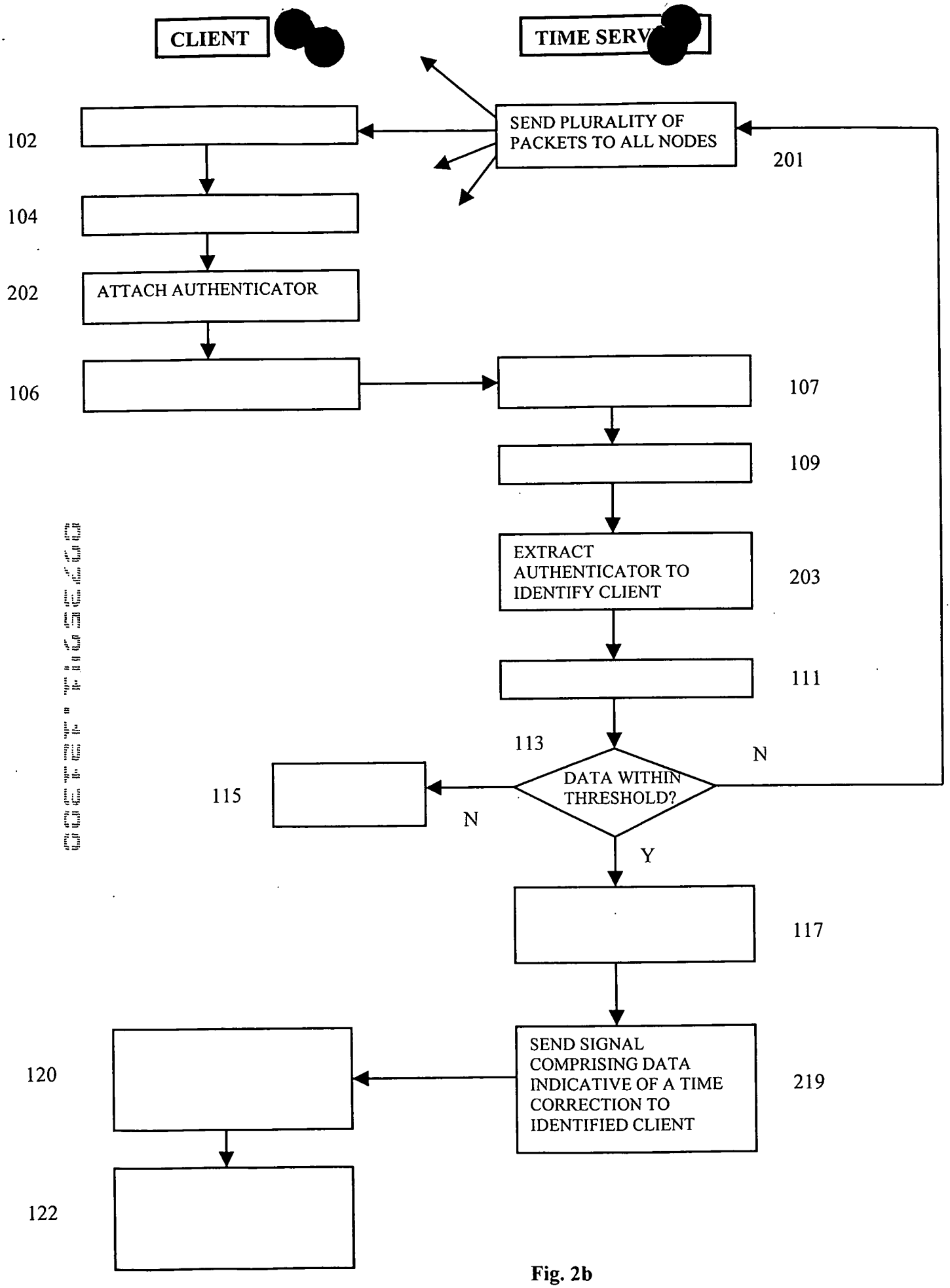
CLIENT
TIME SERV
SEND PLURALITY OF PACKETS TO ALL NODES
201
102
104
ATTACH AUTHENTICATOR
202
106
107
109
EXTRACT AUTHENTICATOR TO IDENTIFY CLIENT
203
111
113
DATA WITHIN THRESHOLD?
N
Y
115
N
117
SEND SIGNAL COMPRISING DATA INDICATIVE OF A TIME CORRECTION TO IDENTIFIED CLIENT
219
120
122

Fig. 2b

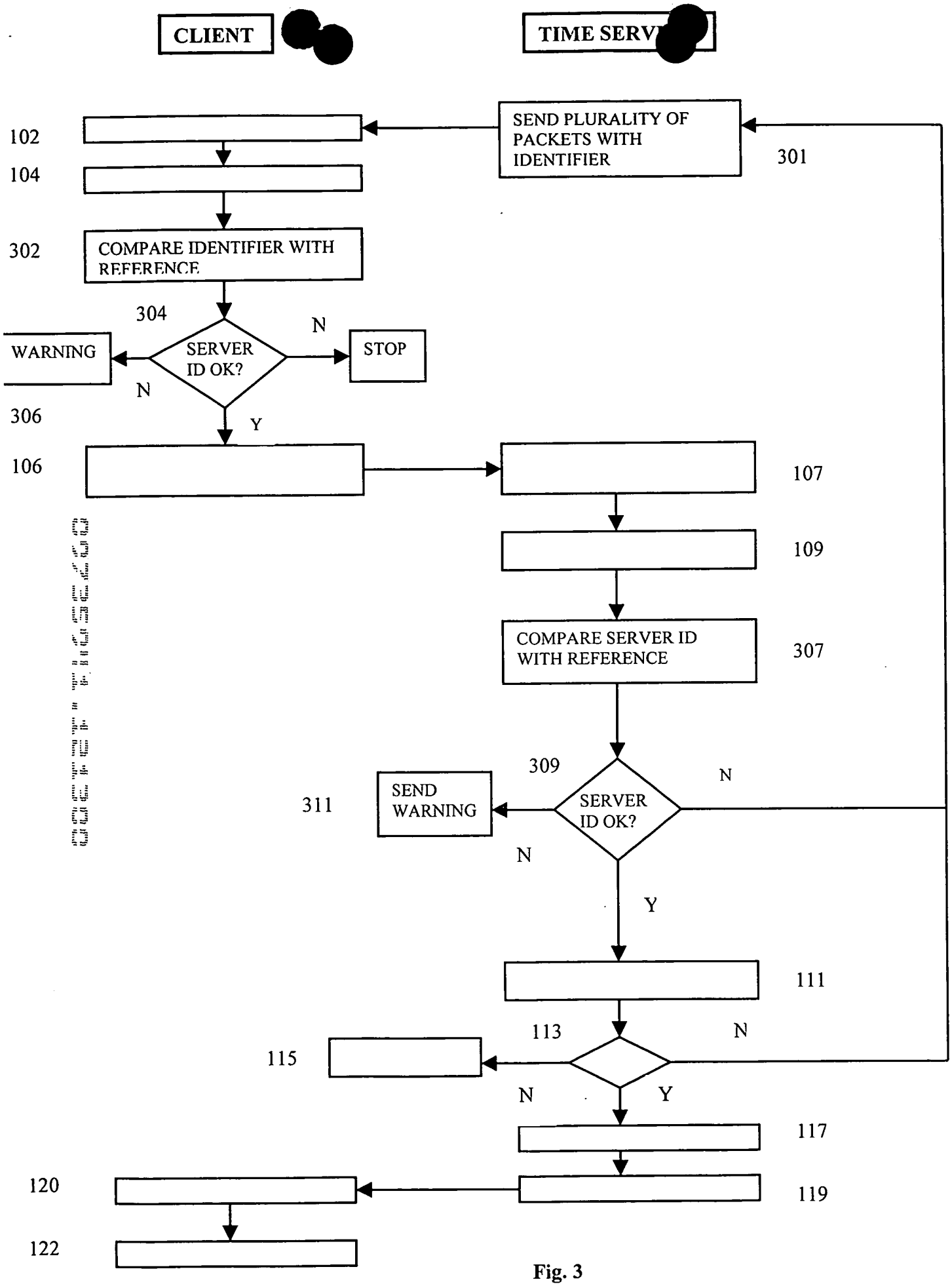
CLIENT
TIME SERV
SEND PLURALITY OF PACKETS WITH IDENTIFIER
301
102
104
302
COMPARE IDENTIFIER WITH REFERENCE
304
SERVER ID OK?
N
WARNING
STOP
N
306
Y
106
107
109
COMPARE SERVER ID WITH REFERENCE
307
309
SERVER ID OK?
N
311
SEND WARNING
N
Y
111
113
N
115
N
Y
117
120
119
122

Fig. 3

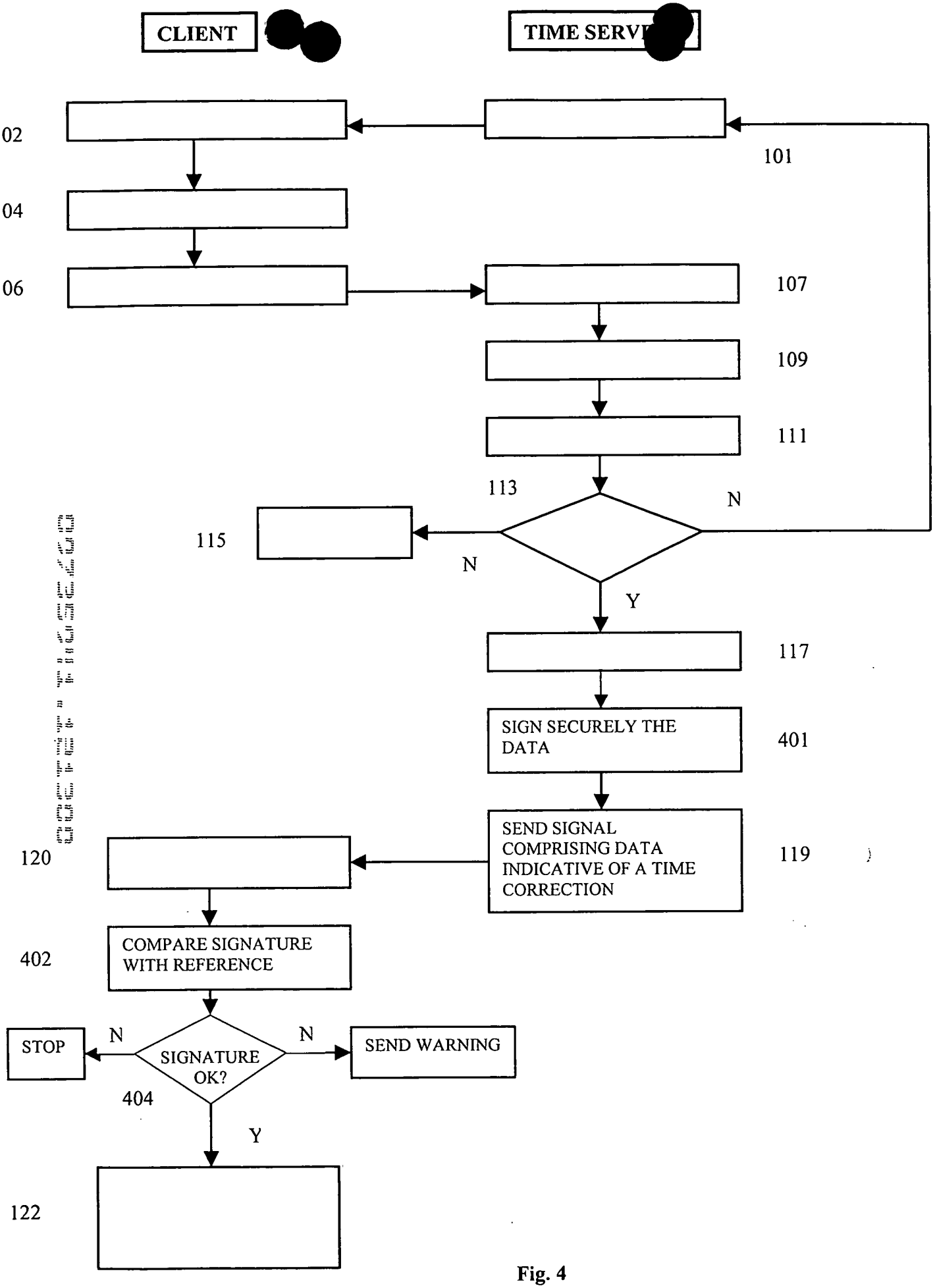
CLIENT
TIME SERV
102
101
104
106
107
109
111
113
N
115
N
Y
117
SIGN SECURELY THE DATA
401
SEND SIGNAL COMPRISING DATA INDICATIVE OF A TIME CORRECTION
119
120
COMPARE SIGNATURE WITH REFERENCE
402
STOP
N
SIGNATURE OK?
404
N
SEND WARNING
Y
122

Fig. 4

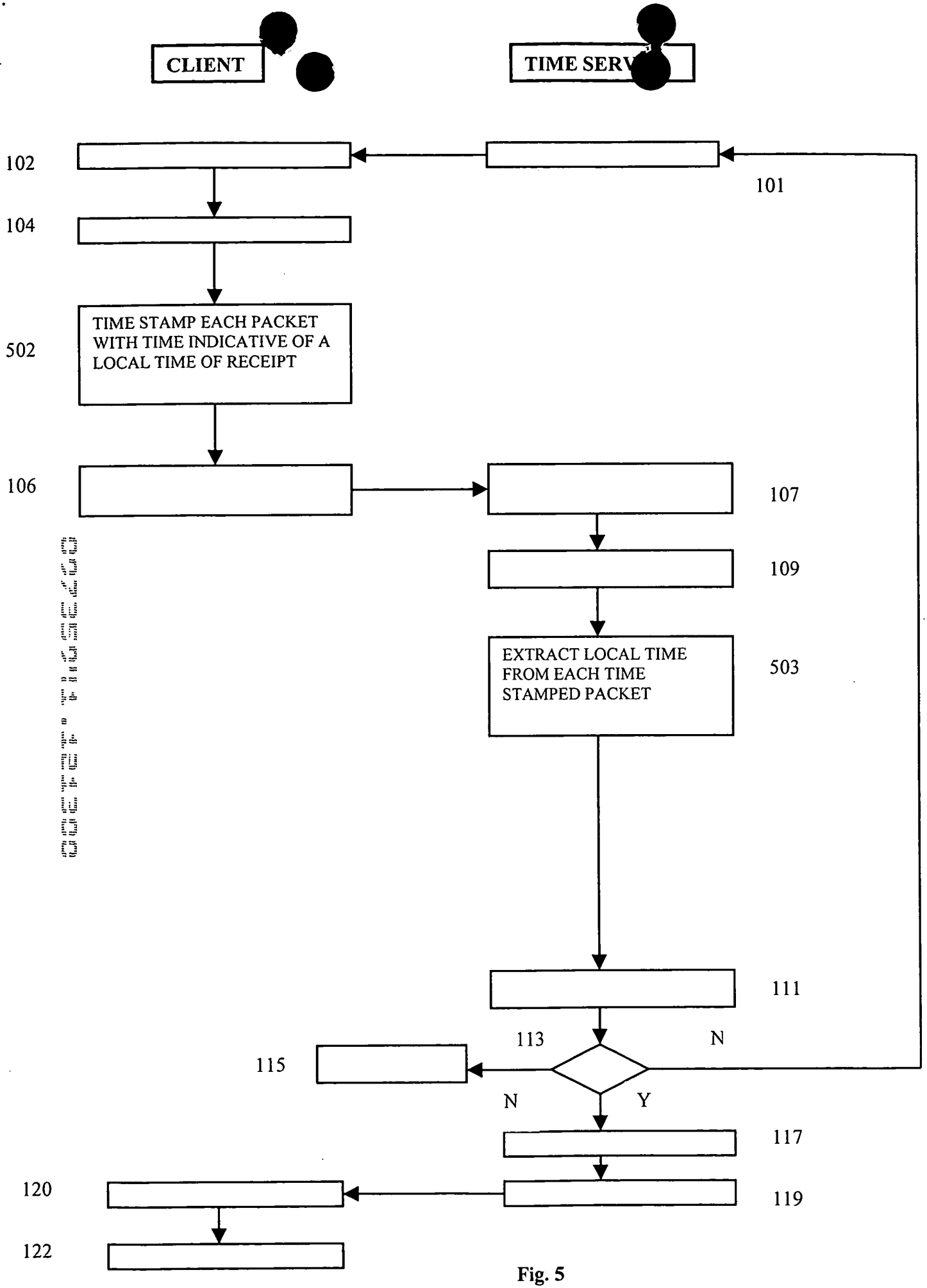
CLIENT
TIME SERV
102
101
104
TIME STAMP EACH PACKET WITH TIME INDICATIVE OF A LOCAL TIME OF RECEIPT
502
106
107
109
EXTRACT LOCAL TIME FROM EACH TIME STAMPED PACKET
503
111
113
N
115
N
Y
117
120
119
122

Fig. 5

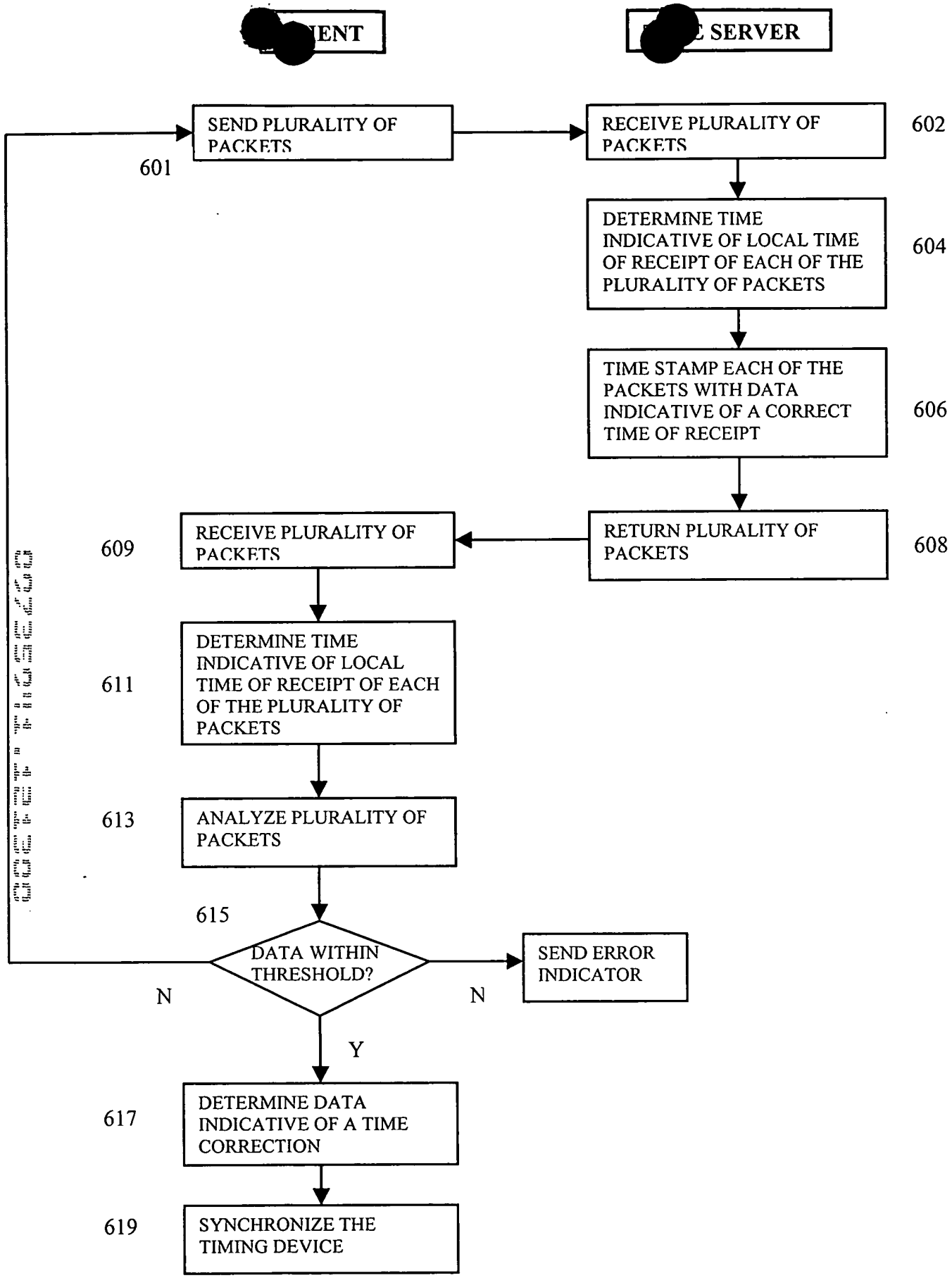
[redacted]IENT
[redacted]E SERVER
SEND PLURALITY OF PACKETS
601
RECEIVE PLURALITY OF PACKETS
602
DETERMINE TIME INDICATIVE OF LOCAL TIME OF RECEIPT OF EACH OF THE PLURALITY OF PACKETS
604
TIME STAMP EACH OF THE PACKETS WITH DATA INDICATIVE OF A CORRECT TIME OF RECEIPT
606
RETURN PLURALITY OF PACKETS
608
RECEIVE PLURALITY OF PACKETS
609
DETERMINE TIME INDICATIVE OF LOCAL TIME OF RECEIPT OF EACH OF THE PLURALITY OF PACKETS
611
ANALYZE PLURALITY OF PACKETS
613
615
DATA WITHIN THRESHOLD?
N
N
SEND ERROR INDICATOR
Y
DETERMINE DATA INDICATIVE OF A TIME CORRECTION
617
SYNCHRONIZE THE TIMING DEVICE
619

Fig. 6

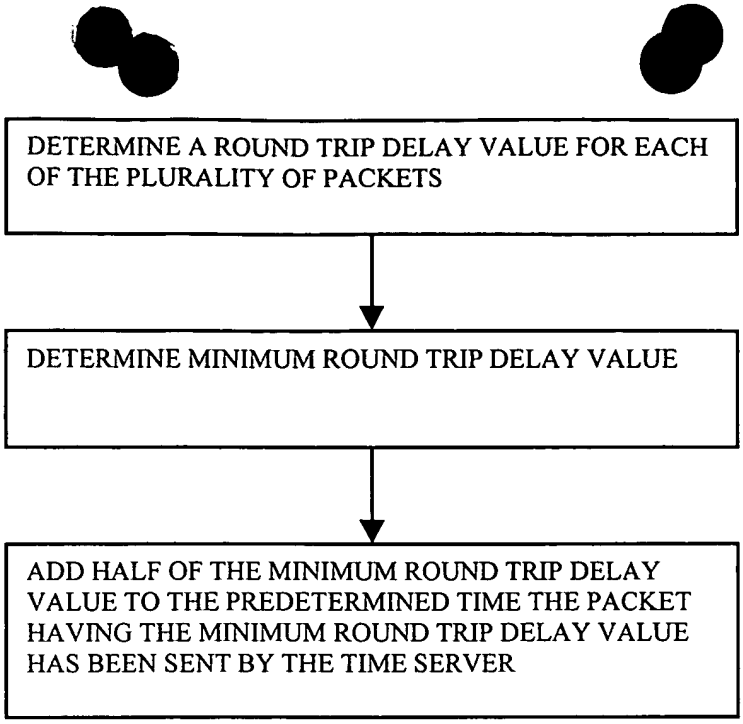
DETERMINE A ROUND TRIP DELAY VALUE FOR EACH OF THE PLURALITY OF PACKETS
DETERMINE MINIMUM ROUND TRIP DELAY VALUE
ADD HALF OF THE MINIMUM ROUND TRIP DELAY VALUE TO THE PREDETERMINED TIME THE PACKET HAVING THE MINIMUM ROUND TRIP DELAY VALUE HAS BEEN SENT BY THE TIME SERVER

Fig. 7a

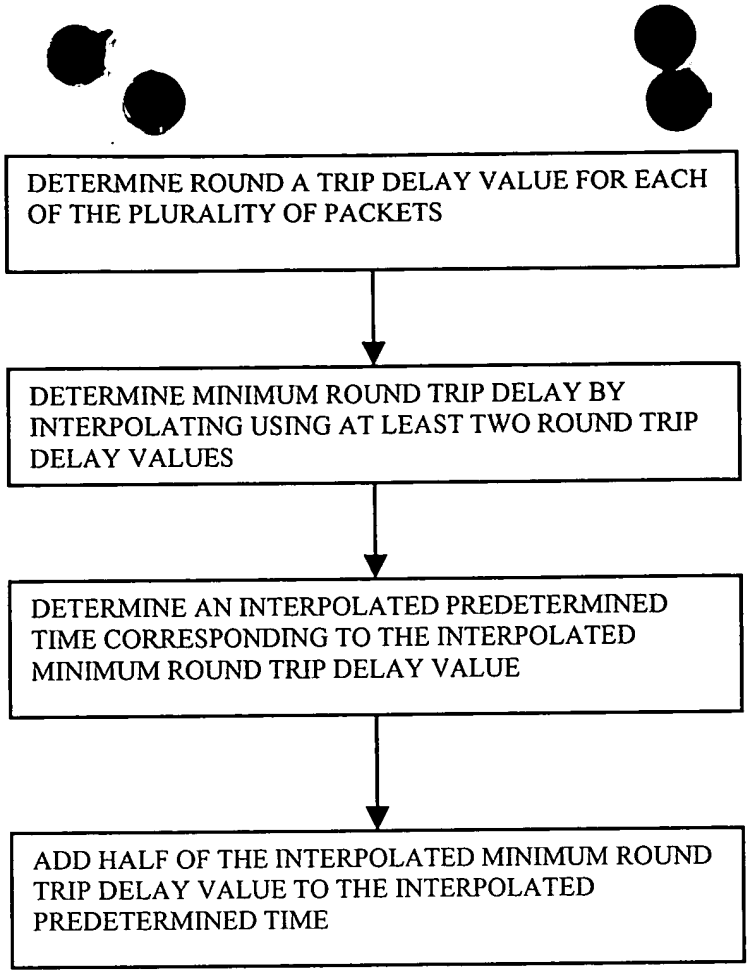
DETERMINE ROUND A TRIP DELAY VALUE FOR EACH OF THE PLURALITY OF PACKETS
DETERMINE MINIMUM ROUND TRIP DELAY BY INTERPOLATING USING AT LEAST TWO ROUND TRIP DELAY VALUES
DETERMINE AN INTERPOLATED PREDETERMINED TIME CORRESPONDING TO THE INTERPOLATED MINIMUM ROUND TRIP DELAY VALUE
ADD HALF OF THE INTERPOLATED MINIMUM ROUND TRIP DELAY VALUE TO THE INTERPOLATED PREDETERMINED TIME

Fig. 7b

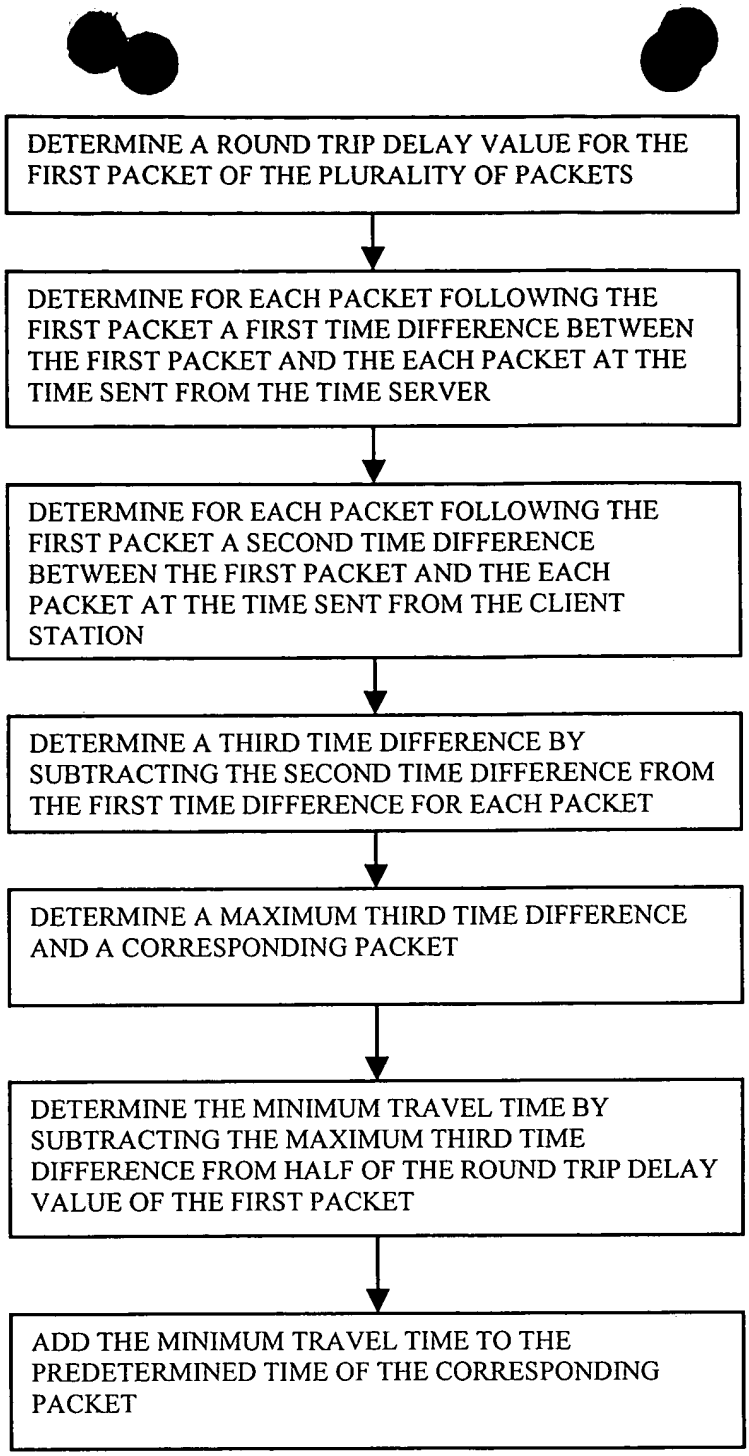
DETERMINE A ROUND TRIP DELAY VALUE FOR THE FIRST PACKET OF THE PLURALITY OF PACKETS
DETERMINE FOR EACH PACKET FOLLOWING THE FIRST PACKET A FIRST TIME DIFFERENCE BETWEEN THE FIRST PACKET AND THE EACH PACKET AT THE TIME SENT FROM THE TIME SERVER
DETERMINE FOR EACH PACKET FOLLOWING THE FIRST PACKET A SECOND TIME DIFFERENCE BETWEEN THE FIRST PACKET AND THE EACH PACKET AT THE TIME SENT FROM THE CLIENT STATION
DETERMINE A THIRD TIME DIFFERENCE BY SUBTRACTING THE SECOND TIME DIFFERENCE FROM THE FIRST TIME DIFFERENCE FOR EACH PACKET
DETERMINE A MAXIMUM THIRD TIME DIFFERENCE AND A CORRESPONDING PACKET
DETERMINE THE MINIMUM TRAVEL TIME BY SUBTRACTING THE MAXIMUM THIRD TIME DIFFERENCE FROM HALF OF THE ROUND TRIP DELAY VALUE OF THE FIRST PACKET
ADD THE MINIMUM TRAVEL TIME TO THE PREDETERMINED TIME OF THE CORRESPONDING PACKET

Fig. 7c

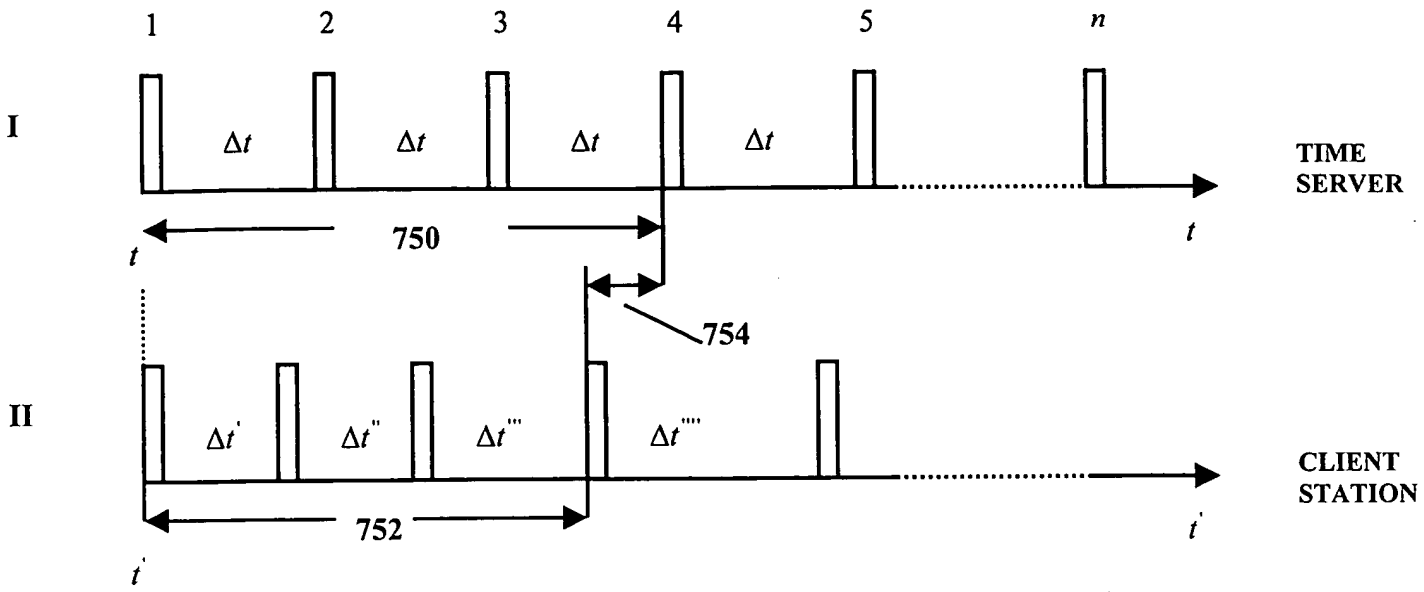
1
2
3
4
5
n
I
Δt
Δt
Δt
Δt
TIME SERVER
t
750
t
754
II
Δt'
Δt''
Δt'''
Δt''''
CLIENT STATION
752
t'
t'

Fig. 7d

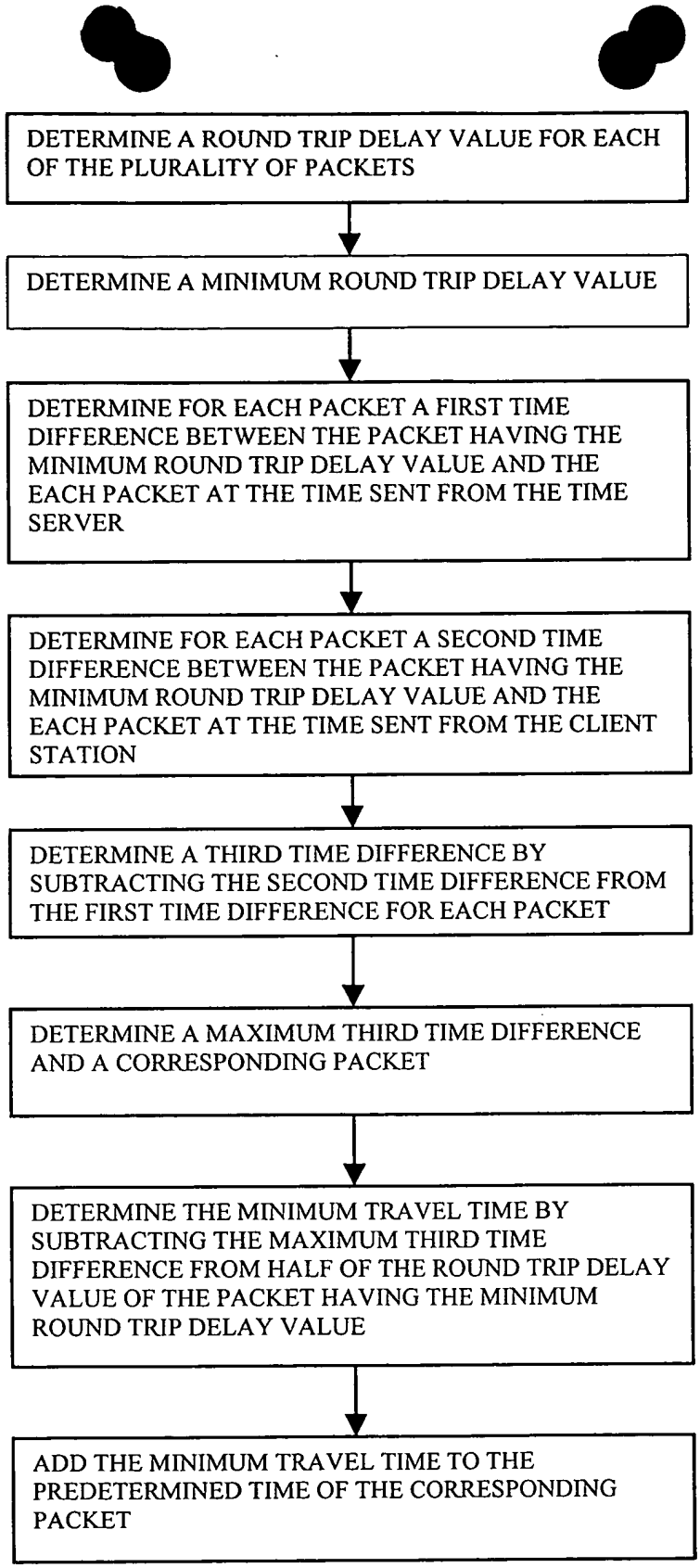
DETERMINE A ROUND TRIP DELAY VALUE FOR EACH OF THE PLURALITY OF PACKETS
DETERMINE A MINIMUM ROUND TRIP DELAY VALUE
DETERMINE FOR EACH PACKET A FIRST TIME DIFFERENCE BETWEEN THE PACKET HAVING THE MINIMUM ROUND TRIP DELAY VALUE AND THE EACH PACKET AT THE TIME SENT FROM THE TIME SERVER
DETERMINE FOR EACH PACKET A SECOND TIME DIFFERENCE BETWEEN THE PACKET HAVING THE MINIMUM ROUND TRIP DELAY VALUE AND THE EACH PACKET AT THE TIME SENT FROM THE CLIENT STATION
DETERMINE A THIRD TIME DIFFERENCE BY SUBTRACTING THE SECOND TIME DIFFERENCE FROM THE FIRST TIME DIFFERENCE FOR EACH PACKET
DETERMINE A MAXIMUM THIRD TIME DIFFERENCE AND A CORRESPONDING PACKET
DETERMINE THE MINIMUM TRAVEL TIME BY SUBTRACTING THE MAXIMUM THIRD TIME DIFFERENCE FROM HALF OF THE ROUND TRIP DELAY VALUE OF THE PACKET HAVING THE MINIMUM ROUND TRIP DELAY VALUE
ADD THE MINIMUM TRAVEL TIME TO THE PREDETERMINED TIME OF THE CORRESPONDING PACKET

Fig. 7e

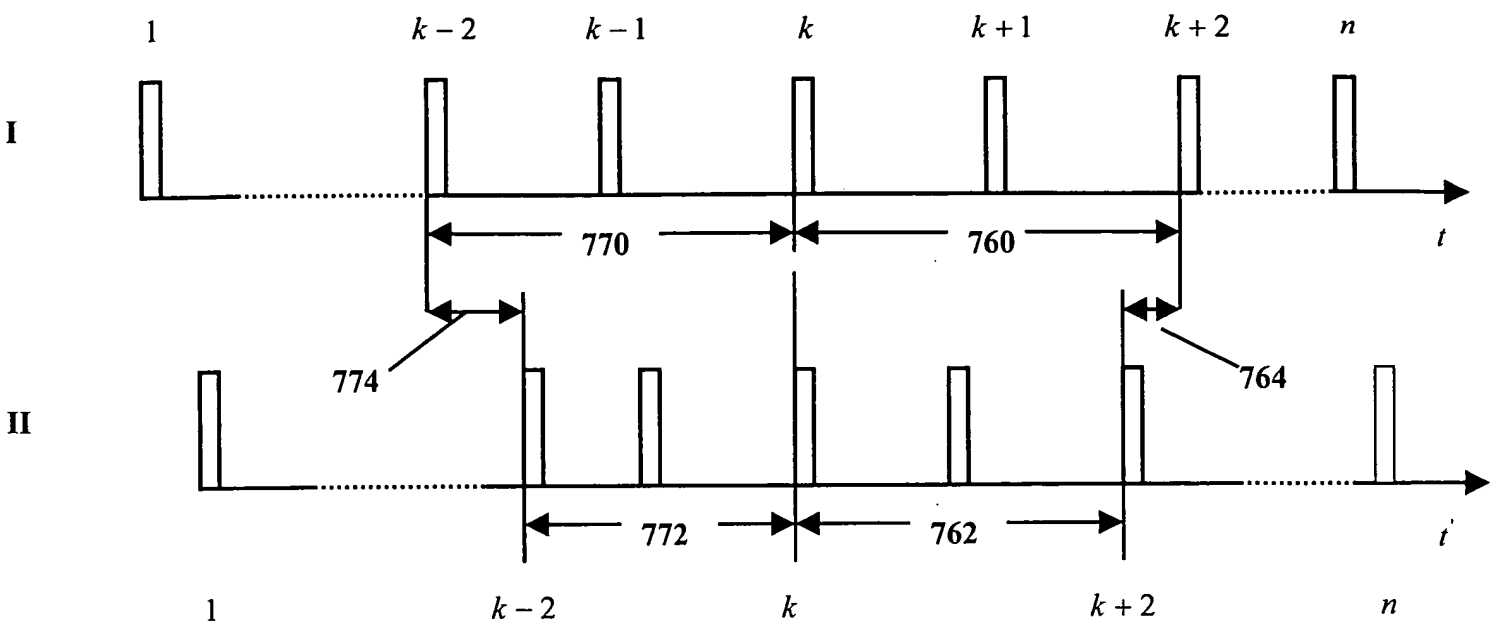

Fig. 7f

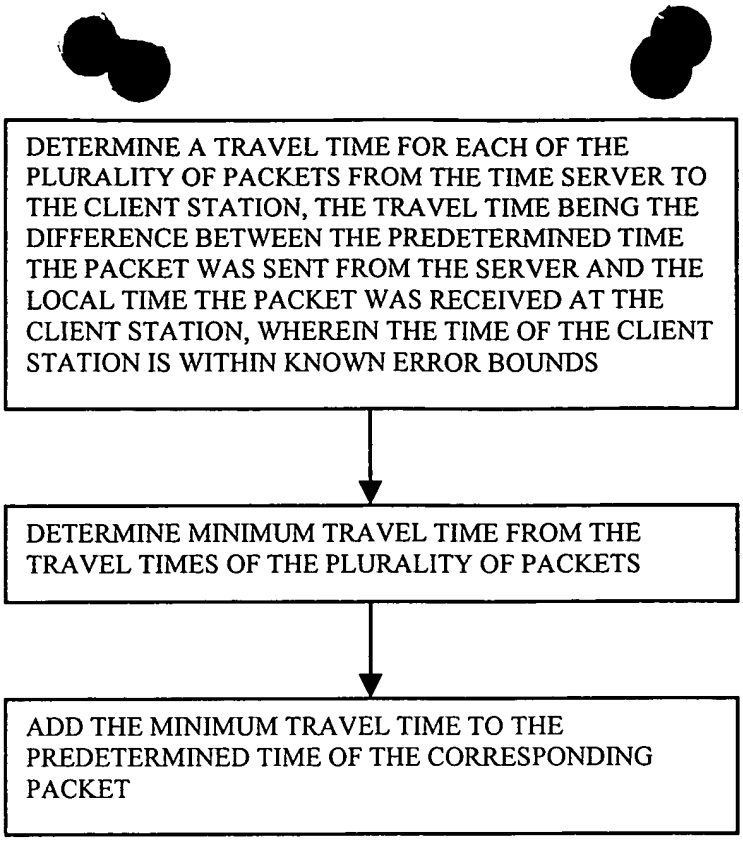
DETERMINE A TRAVEL TIME FOR EACH OF THE PLURALITY OF PACKETS FROM THE TIME SERVER TO THE CLIENT STATION, THE TRAVEL TIME BEING THE DIFFERENCE BETWEEN THE PREDETERMINED TIME THE PACKET WAS SENT FROM THE SERVER AND THE LOCAL TIME THE PACKET WAS RECEIVED AT THE CLIENT STATION, WHEREIN THE TIME OF THE CLIENT STATION IS WITHIN KNOWN ERROR BOUNDS
DETERMINE MINIMUM TRAVEL TIME FROM THE TRAVEL TIMES OF THE PLURALITY OF PACKETS
ADD THE MINIMUM TRAVEL TIME TO THE PREDETERMINED TIME OF THE CORRESPONDING PACKET

Fig. 7g